

Special Articles and Association Notes

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Annual Meeting of the Canadian Medical Association Montreal, June 19, 20, 21, 22 and 23, 1939

The provisional programme for the Annual Meeting of the Canadian Medical Association has been published in the March number of the Canadian Medical Association *Journal*. The papers will be given as usual at Sectional Meetings including the Sections of Anaesthesia, Dermatology, Historical Medicine, Medicine, Military Medicine, Obstetrics and Gynaecology, Ophthalmology, Otolaryngology, Paediatrics, Radiology, Rheumatic Diseases, Surgery, Urology: and in addition, certain papers will be read at general sessions.

Several medical men from Winnipeg will be reading papers, including Drs. A. M. Davidson, Ross Mitchell, Lennox Bell, C. W. Walton, J. D. McQueen, Bruce Chown, A. Gibson, H. D. Morse and J. D. Adamson.

An interesting innovation this year will be the Round Table and Instructional Conferences which will take place from 8.30 to 9.25 on the mornings of Wednesday, Thursday and Friday, in the following Sections, Anaesthesia, Dermatology, Medicine, Obstetrics and Gynaecology, Ophthalmology, Otolaryngology, Paediatrics, Radiology, Surgery and Urology.

There will be several visiting speakers.

Professor E. P. Cathcart, Professor of Physiology at the University of Glasgow, will deliver an address to the annual meeting and will also speak in other centres in Canada next summer on Nutrition. Professor Cathcart is an international authority and a pioneer in investigations into problems of nutrition and metabolism.

Other guests will be Dr. A. J. Bedell, of Albany, N.Y., an ophthalmologist of national reputation, who has made outstanding contributions to the pathology of the retina; Dr. Clara M. Davis, of Winetka, Ill., an authority on the modern feeding of infants; and Dr. Norman Miller, formerly of the University of Iowa, and now Professor of Obstetrics and Gynaecology at the University of Michigan. Professor Miller is the author of numerous articles dealing with his chosen specialty, and he will speak at one of the sessions, in June, on the subject of Dysemorrhoea.

Dr. K. A. MacKenzie, Professor of Medicine at Dalhousie University, Halifax, President of the Canadian Medical Association, will give one of the more important addresses in General Sessions in his capacity as Retiring President.

From a purely medical point of view, Montreal is one of the most interesting cities in Canada in which to hold an annual meeting. With its large population and well-equipped hospitals, there is an unusual wealth of clinical material. In addition, the opportunity of seeing the work of our French Canadian colleagues is a stimulating experience.

Montreal offers unexcelled opportunities for the enjoyment of the leisure time available at any medical meeting. Although it is the largest city in Canada and the second largest port on the north Atlantic, yet one is continually reminded of its historical past. The city has numerous historical buildings and museums, one of the most interesting of which is the Chateau de Ramezay. The Chateau was built in 1705 by the French governor whose name it bears. Since 1847 it has served many purposes and was finally converted into a museum. There is in it a wealth of historical relics and interesting documents. Nearby the Chateau is the interesting Bonsecours Church; the sailors church and the Bonsecours Market. In the heart of the city is Mount Royal, a natural park with a large Chalet at its summit. In addition, Montreal offers theatrical and musical entertainment unsurpassed by any city in Canada.

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Annual Meeting of the Manitoba Medical Association

Scientific Programme

Members of the Manitoba Medical Association are invited to submit papers for the scientific programme of the annual meeting in September, 1939. Those wishing to deliver papers should forward copies or an abstract. Applications will be received up to May 1st. The selection will be made by the Scientific Programme Committee.

Suggestions from members as to particular subjects which they would wish to have discussed are also invited.

Communications may be sent to the Honorary Secretary, Manitoba Medical Association, 102 Medical Arts Building, Winnipeg. They will be sent on to the Committee for consideration and action.

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While no definite age limit has been set for this competition, age may be a determining factor in making a selection.

Nature of examination.—A rating on education and experience will be given from the sworn statements, supporting documents and other evidence submitted by applicants on and with their application forms. Candidates are requested to give full particulars regarding their technical training and experience, especially as they bear on the qualifications for and the duties of this position. An oral examination will be given if necessary in the opinion of the Commission. No examination fee is required.

An eligible list valid for a period of one year may be established.

RAWSON—MACCULLOUGH

On March 14th, 1939, at Knox Church, Winnipeg, by Rev. James W. Clarke, M.C., Noel R. Rawson, M.B., B.S. (Lond.); D.P.H. (Tor.); eldest son of Mr. Christopher Rawson, of Whalley Range, Manchester, to Jean Anna MacCullough, daughter of the late Dr. James Henry MacCullough, of Owen Sound, Ont., and of Mrs. MacCullough, of Harald Apts., Winnipeg.



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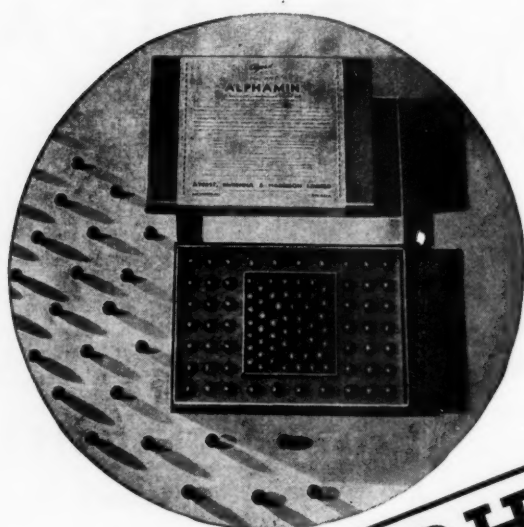
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NEWS ITEMS

Note: The following is the first instalment of an article on "Focal Infection with particular emphasis on preventive aspects for individuals between 21 and 45 years of age" written by W. J. Stainsby and Edith E. Nicholls from the New York Hospital and Department of Medicine, Cornell University Medical College, New York City, and recently published in the Bulletin "Preventive Medicine". The second and last instalment of this article will appear in the next issue of the Manitoba Medical Association Review:—

"FOCAL INFECTION (FOCI INFECTION): WITH PARTICULAR EMPHASIS ON PREVENTIVE ASPECTS FOR INDIVIDUALS BETWEEN 21 AND 45 YEARS OF AGE:—Local infections unquestionably affect the health of a great many individuals. Certain principles concerning their relationship to disease elsewhere in the body have been definitely established; others have been promulgated that are not based on controlled clinical or animal experiments and their application in the practice of medicine has been entirely empirical. The purpose of this article is to present the various aspects of focal infection with emphasis on prevention and to endeavor to separate well established procedures from those that are experimental or of questionable value.

GENERAL PRINCIPLES OF FOCAL INFECTION

"A focal infection may be defined as a localized infectious process, often chronic and symptomless, that may occur anywhere in the body and which is potentially capable of producing either other localized infections or generalized disease. In its widest meaning, the term could be used to denote the primary site of entrance of organisms for almost all bacterial diseases, an example of which is the role played by localized areas of the intestinal mucosa in the development of typhoid fever. In the generally accepted use of the term, however, and the one used here, a more restricted meaning is intended and the 'portal of entry' for the the various well understood infectious diseases is not included."

"Bacteriology. Several pathogenic microorganisms are capable of producing focal infections. The various streptococci are the ones most frequently encountered in these conditions and are particularly prone to invade the tonsils, accessory nasal sinuses and the apices of the teeth. With the exception of virulent hemolytic varieties, these streptococci tend to produce chronic, long drawn out diseases. The staphylococcus, likewise, is frequently encountered in focal infections, particularly in the bones, accessory nasal sinuses, and the prostate. It is usually a more virulent organism than the streptococcus and tends to produce more serious diseases that often terminate in death. The gonococcus produces its focus in the prostate gland, the fallopian tubes, or other glands along the genital tract. When disseminated in the body this organism causes serious and often fatal lesions, and particularly attacks the joints, the heart valves, or produces a septicemia. The tubercle bacillus usually forms its focus in the lymph glands and pulmonary tissues. The meningococcus, pneumococcus, colon bacillus, and several other microorganisms may at times produce foci of infection.

"Mechanism of Infection. There are three definitely known methods by which microorganisms in infected foci may produce disease elsewhere in the body:

1. By dissemination of the organisms themselves.
2. By dissemination of the products of the organisms.
3. By producing an allergic condition in the host.

"With the first method of producing disease from a focus, the organisms pass by way of the blood stream or lymph channels to other parts of the body. This mechanism is seen clearly in gonococcus arthritis. In this disease the organisms can frequently be isolated from the focus of infection in the genital tract as well as from the affected joints, and rarely from intervening lymph structures and the blood stream.

"With the second method of producing disease from a focus, toxic products of the organisms enter the general circulation and produce widespread disease. This mechanism can best be illustrated by reference to diphtheria. In this disease, the diphtheria bacilli generally remain at the site of infection in the throat, while the toxic products elaborated there enter the circulation and produce degenerative changes in the heart muscles, kidneys, spleen, and peripheral nerves. While diphtheria is not an example of focal infection, it is generally accepted that a similar mechanism operates at times in these conditions.

"With the third method of producing disease from a focus, the localized infection produces what is known as an allergic condition in the host. Following repeated injections of a foreign protein into the body, urticarial, hemorrhagic, and arthritic manifestations often occur. These clinical conditions, so produced, are obviously non-infectious in character. While this mechanism of producing disease is not well understood, there is adequate evidence that it sometimes plays a prominent part in the production of disease and that bacterial proteins may be as potent as other types in producing the allergic state.

"Factors Determining Infection. It may be assumed that practically all human beings at some period in their life harbor foci of infection, yet relatively few of them develop diseases that could be attributed to them. This situation is remarkably similar to that which pertains to many of our contagious diseases. A very high percentage of the population is known to be exposed to tubercle bacilli, often repeatedly, without contracting tuberculous disease. Likewise, with some of our most serious epidemics caused by various infecting agents and where exposure is probably widespread for a particular group of people, only a relatively small number develop disease. It should not be surprising, therefore, that with patients harboring foci of infection only a small percentage actually develops disease that could be caused by their presence.

"Various factors play their roles in deciding whether or not an individual will contract disease from a focal infection. The most important of these are:

1. Virulence of the infecting organisms.
2. Kind, location, and extent of the infected tissue.
3. Resistance of the host.

"The virulence of the infecting organism is a very important factor. A tonsil, for instance, infected by a virulent hemolytic streptococcus is much more likely to cause serious disease than when the organism is less virulent. This virulence is increased by passing from patient to patient, especially during the winter months when passage becomes more frequent.

"The kind, location and extent of the focal infection is another important factor in initiating disease. A tuberculous focus in lymphoid tissue, because of the ease by which such infections can be distributed to various parts of the body through lymph channels and blood vessels, is more serious than a subcutaneous infection by the same organism. A pyogenic localized infection of the face above the mouth is more serious than one on the lower part of the face, due to the proximity of important structures. In addition, a small

focus such as a low grade infection of a finger is less likely to produce serious disease than a large one which has a greater opportunity to spread along the lymphatics and cause abscesses elsewhere in the body or a septicemia.

"The resistance of the host is another very important factor in determining whether or not a patient will develop serious disease from a focal infection. The resistance may be a natural inherited immunity, one acquired from contracting the disease, or produced by vaccination. These various immunological factors vary from time to time depending on the general health of the individual. Worry, overwork, trauma, undernutrition, and other diseases all tend to lower temporarily the immunity of the individual, and it is during the temporary periods of lowered resistance that generalized disease is likely to develop from focal infections.

TONSILS AND OTHER LYMPH TISSUE OF THE NASO-PHARYNX

"The faucial tonsils and other lymph tissues of the nasopharynx are considered together as they are prone to develop similar infections at the same time.

"Chronically diseased tonsils are apparently the result of modern civilization. Frequent development of upper respiratory infections due to overcrowding tends to so injure and destroy the normal structure of this organ that instead of serving its original purpose of defending the body from infection, it becomes chronically infected tissue and a source of danger to the individual. Dust and fumes, and poor artificial heating contribute their roles to the production of diseased tonsils.

"Considerable difficulty is often experienced in determining whether or not the tonsils of an individual are diseased. When they are grossly enlarged, and localized infection develops in the Eustachian tubes, sinuses or throat because of mechanical factors, the diagnosis is relatively easy. In adults, however, diseased tonsils are generally not enlarged and the diagnosis has to be based on signs and symptoms and the patient's general health.

"For the prevention of serious disease, then, tonsils should be considered unhealthy whenever a patient develops a peritonsillar abscess or frequent attacks of acute tonsillitis, and their removal should be ordered as soon as the patient's general condition warrants it. In the absence of these clear cut evidences of infection, the decision relative to the state of the tonsils is made from the history of chronic or repeated sore throat, from the lack of mobility of the tonsils, their redness, and the presence of pus that can sometimes be expressed from them. If the patient is suffering from a disease, the etiology of which is believed to be related to a focus in the tonsils, tonsillectomy is indicated even if these structures appear healthy, providing other foci have been carefully searched for and not found, and providing the patient fails to respond to other forms of therapy.

"It must be constantly borne in mind that healthy tonsils serve a useful purpose; they are the individual's first line of defense against infections of the throat and they tend to limit and shorten such infectious processes. Tonsils, therefore, should not be removed indiscriminately.

"Diseased tonsils are responsible for a wide variety of ailments. The relationship between them and acute nephritis is well established. They are also often responsible for unexplained fever, for recurrent otitis media, serious infections deep-seated in the neck, some cases of rheumatoid arthritis, neuritis, and the indefinite group that come under the heading of myositis. They are also responsible at times for general debility, anemia, and various indefinite and vague symptoms.

TEETH

"Focal infections of the teeth include pyorrhea, pyorrheal abscesses, and infections at the apex. The importance of pyorrhea without abscess formation is not definitely established. The ease with which it can drain into the mouth minimizes the possibilities of infection from this source directly invading the blood stream or lymph channels. The chief dangers from pyorrhea seem to consist in the possibility of the discharge infecting other structures of the mouth and throat and various tissues along the bronchial tract as well as in producing deep seated pyorrheal abscesses without free drainage into the mouth. As a health measure, pyorrhea should be treated and any mechanical factors producing it corrected.

"Chronic apical and pyorrheal abscesses sometimes are difficult to diagnose. Localized pain is a suggestive symptom and tenderness on pressing the tooth may be elicited. The chief difficulty however lies in the fact that apical abscesses usually do not form on a tooth with an intact nerve supply, and because of this, lack of pain and tenderness do not rule out such abscess formations. The x-ray is our most important diagnostic aid for dental disease and it often shows clearly deep-seated infections that otherwise could not be detected. On the other hand, a negative dental x-ray does not rule out apical infections because the exposure can be taken only in one plane and the abscess may be missed because of superimposed structures. Sometimes it is necessary to repeat x-rays at intervals to demonstrate the presence of these infections.

"Dead teeth often constitute a serious problem for the dentist and physician. They are not necessarily the seat of an infectious process as demonstrated at extraction, and individuals have been known to retain devitalized teeth for many years without developing serious disease. Therefore, in a healthy individual dead teeth without demonstrable infection need not be extracted but should be studied by x-ray at intervals of six months or one year. On the other hand, if the patient is suffering from a disease that is believed to be caused by a focus of infection, more radical procedures are advised. If such patients do not respond to other forms of therapy and no other focus of infection is found, extraction of dead teeth is justified on the basis that they may be the seat of undetectable infection. This should not be done, however, until other therapeutic measures fail to produce recovery.

"Once a diagnosis of apical infection is established, treatment is indicated. Many such infections have been eliminated by various methods without the extraction of the tooth, but such methods of therapy always entail a certain amount of uncertainty both as regards the elimination of the infection and the dissemination of it to other parts of the body. It is far safer to extract infected teeth although the attitude of the patient may make extraction inadvisable.

"Dental infections are responsible for a wide variety of diseases including local infections around the mouth, rheumatoid arthritis, neuritis, and myositis.

THE ACCESSORY NASAL SINUSES

"Like the tonsils, infection of the accessory nasal sinuses is often the result of rhinitis and other upper respiratory diseases. Repeated attacks of acute sinusitis usually produce a chronic condition. In addition, infection of the maxillary sinuses may be caused by a dental abscess.

"The diagnosis of a chronic sinusitis is often difficult. The localized headache resulting from the condition usually follows the distribution of the trigeminal nerve. Infection of the sphenoidal sinuses, however, gives rise to occipital headache. A chronic discharge from the nose or back of the throat is indicative of sinusitis. When carefully taken, the x-ray is the most important diagnostic measure, and gives reasonably accurate

information as to whether or not the sinuses are diseased.

"The sinuses are very important as foci of infection. For the prevention of serious disease, acute or chronic sinusitis should be treated and eradicated if possible. Beneficial results are often obtained by improving drainage and sometimes by periodic washings. Improved hygienic measures and change of abode to a warm dry climate such as prevails in Arizona are beneficial.

"Chronically infected sinuses are etiologically important for chronic bronchitis, bronchiectasis, local infection about the face, bronchial asthma, rheumatoid arthritis, and the various infections of nerves and muscles.

THE PROSTATE GLAND

"The prostate receives its importance as a focus of infection primarily because of the frequency with which it is infected with the gonococcus. Prostatic infections with this organism frequently produce arthritis, and inflammatory conditions in other parts of the genital tract. Occasionally septicemia and endocarditis result from this type of infection.

"The prostate may also become chronically infected with the colon bacillus, the staphylococcus, and the streptococcus with the production of polyarthritis and cystitis as well as various other conditions.

"Chronic infections of the prostate should receive prompt attention both for the prevention of disease elsewhere in the body as well as for the treatment of these complications once they have developed. The treatment of prostatic infections is usually successful but must be continued for a long period of time.

THE ENDOCERVIX

"The cervix is a frequent site of chronic infection and examination of smears or cultures made from the exudate of such inflamed tissue generally reveals a wide variety of microorganisms, although the gonococcus, streptococcus, and staphylococcus may predominate.

"The relationship of gonococcus infections in lesions of the cervix to disease elsewhere in the body is well established. It is capable of initiating infection in other parts of the genital tract as well as a generalized arthritis, septicemia, and endocarditis.

"The importance of the cervix as a focus of infection produced by organisms other than the gonococcus has not been definitely established. Bacteriologic studies indicate clearly that both anaerobic and aerobic streptococci are frequent inhabitants of the chronically diseased endocervix. Morphologically, it is a complicated glandular structure with numerous small ducts leading to the cervical canal. Theoretically, obstruction to free drainage through these ducts should frequently occur and dangerous foci of infection result. Clinically, however, localized non-gonococcal infection of the cervix has never been proven a serious menace to the health of the individual, and further work must be done before it can be considered established.

(To be continued in May issue)

COMMUNICABLE DISEASES REPORTED

Urban and Rural — February, 1939

Occurring in the Municipalities of:

Mumps: Total 202—Winnipeg 120, St. James 31, Kildonan East 18, Tuxedo 18, Morris Rural 4, Unorganized 4, Morris Town 2, Shoal Lake Village 1, St. Andrews 1, St. Vital 1 (Late Reported: January, St. James 2).

Scarlet Fever: Total 168—Brandon 57, Winnipeg 47, Shoal Lake Village 12, Boissevain 7, Brokenhead 5, Kildonan West 3, South Norfolk 3, Assiniboia 2, Morton 2, Portage Rural 2, Rivers 2, St. Boniface 2, The Pas 2, Unorganized 2, Coldwell 1, Daly 1, Dufferin 1, Fort Garry 1, North Norfolk 1, Portage City 1, Shoal Lake Rural 1, Springfield 1, St. Vital 1, Turtle Mountain 1, Whitehead 1, Whitewater 1 (Late Reported: January, Brandon 2, Carman 2, Cameron 1, Dufferin 1, Rivers 1).

Chickenpox: Total 112—Winnipeg 80, St. Boniface 10, Flin Flon 7, Kildonan East 3, Arthur 2, Unorganized 2, Minnedosa 1, Portage City 1, Selkirk 1, Transcona 1 (Late Reported: January, St. Boniface 3, Flin Flon 1).

Measles: Total 84—Argyle 19, Boissevain 19, Victoria 19, Kildonan West 6, Winnipeg 5, Lorne 5, St. James 2, St. Vital 2, Daly 1, Louise 1, Oakland 1, Strathclair 1 (Late Reported: January, Boissevain 2, Louise 1).

Influenza: Total 63—Brandon 52, Unorganized 10, Winnipeg 1.

Whooping Cough: Total 62—Winnipeg 31, Unorganized 19, Lawrence 5, Kildonan West 2, Gilbert Plains 1, Minitonas 1, Rivers 1, St. James 1 (Late Reported: January, Blanchard 1).

Tuberculosis: Total 34—Winnipeg 18, St. Vital 2, Assiniboia 1, Brokenhead 1, Dauphin Rural 1, Dufferin 1, Flin Flon 1, Gimli Rural 1, Gladstone 1, Hanover 1, Lorne 1, Mossey River 1, Sifton 1, Ste. Anne 1, St. Boniface 1, Unorganized 1.

Diphtheria: Total 14—Winnipeg 3, Morris Town 2, Hanover 2, Kildonan West 1, St. Clements 1 (Late Reported: January, St. Clements 4, St. Andrews 1).

Erysipelas: Total 6—Winnipeg 4, Argyle 1, Portage City 1.

Typhoid Fever: Total 5—Brokenhead 1, Ste. Anne 1, Winnipeg 1 (Late Reported: January, Portage Rural 2).

German Measles: Total 5—Brandon 5.

Lobar Pneumonia: Total 5—Brandon 1 (Late Reported: January, Montcalm 2, Brandon 1, Morris Rural 1).

Smallpox: Total 4—Shell River 1 (Late Reported: January, Roblin Town 2, Shell River 1).

Septic Sore Throat: Total 3—Rivers 2, Unorganized 1.

Lethargic Encephalitis: Total 1—Pembina 1.

Undulant Fever: Total 1—Brenda 1.

Venereal Disease: Total 145—Gonorrhoea 70, Syphilis 75.

DEATHS FROM ALL CAUSES IN MANITOBA

For the Month of January, 1939

URBAN—Cancer 37, Pneumonia 10, Lobar Pneumonia 7, Tuberculosis 6, Influenza 5, Scarlet Fever 1, Erysipelas 1, Typhoid Fever 1, all others under one year 13, all other causes 157, Stillbirths 18. Total 256.

RURAL—Cancer 27, Pneumonia 18, Tuberculosis 15, Lobar Pneumonia 10, Influenza 4, Diphtheria 1, Scarlet Fever 1, Syphilis 1, Infective Dysentery 1, all others under one year 26, all other causes 122, Stillbirths 11. Total 237.

INDIAN—Tuberculosis 6, Pneumonia 2, Measles 1, Lobar Pneumonia 1, all others under one year 6, all other causes 3, Stillbirths 2. Total 21.

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RECENT ACCESSIONS

March 12, 1938 — March 6, 1939

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New York, Macmillan, 1938.
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Springfield, Ill., Thomas, [c1937.]
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New York, American Heart Association, 1937.
- American Men of Science. A biographical directory, ed. by J. McKeen Cattell and Jacques Cattell; 6th ed.
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F. Hendrych and K. Klimesch, Arch.

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Clinical Section

Observations on the Incidence and Epidemiology of Tuberculosis*

By

J. D. ADAMSON, B.A., M.D. (Man.), M.R.C.P.
(Edin.), F.R.C.P. (C.)

Associate Professor of Medicine
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Medical Superintendent, St. Boniface Sanatorium

Tuberculosis can be traced farther back into history than any known infection; as a separate disease it was identified before all others. Recognisable accounts are found in Babylonian, Egyptian, and Grecian literature. These accounts are confirmed by palaeopathology; there is a well known specimen showing advanced Potts' disease in a mummie said to have been buried several thousand years B.C.

The incidence of the tuberculosis in the pre-Christian era is impossible to estimate. In the Hippocratic works phthisis is spoken of as a very common febrile disease. It was known to be infectious and the age incidence was well recognised. Hippocrates says: In the different ages the follow-

ing complaints occur: "To persons past boyhood, haemoptysis, phthisis, acute fevers, epilepsy, and other disease but especially the aforementioned." (Aphorisms III-29). Also he says: "Phthisis most commonly occurs between the ages of 18 and 35 years." (Aphorisms V-9). This age incidence has been confirmed by observers in all periods of history.

Early Figures of Incidence

The first figures of incidence that I have found are those set out in the "Bills of Mortality" for London in the year 1665. These were probably kept because of interest in the Great Plague which was then at its height. Incidentally, it gives us our first statistical account of tuberculosis, the perennial plague that has been the chief scourge of mankind from its infancy. There is an interesting title page attached to this gruesome record. (The Bills of Mortality, 1665). It is artistically decorated with skulls, broken bones, grave-diggers' implements, hour glasses, and other things to remind us of the brevity and insecurity of life. Following this title page is a weekly record of all the deaths in London. In the introduction to what the printer calls "these sad sheets" he states that the devastation of the plague was in evidence of divine displeasure and meant that "Except we speedily and seriously repent we shall all likewise perish either Similitudine or Certitudine Paenae." Reproduced in Table I. is a summary for the year.

* Part of a symposium on Pulmonary Tuberculosis read before the Winnipeg Medical Society, February 17th, 1939.

TABLE I.

The Diseases and Casualties this Year

Abortive and Stilborne	617	Flox and Small-pox	655	Overlaid & Starved	45
Aged	1545	Found dead in streets, fields, &c.	20	Palsie	30
Ague and Fever	5257	French Pox	86	Plague	68596
Appoplex and Suddenly	116	Frighted	23	Plannet	6
Bedrid	10	Gout and Sciatica	27	Plurisie	15
Blasted	5	Grief	46	Poysoned	1
Bleeding	16	Gripping in the Guts	1288	Quinsie	35
Bloody Flux, Scowring & Flux	185	Hangd & made away themselves	7	Rickets	557
Burnt and Scalded	8	Headmouldshot & Mould-fallen	14	Rising of the Lights	397
Calenture	3	Jaundies	110	Rupture	34
Cancer, Gangrene, and Fistula	56	Impostume	227	Scurvy	105
Canker, and Thrush	111	Kild by severall accidents	46	Shingles and Swine pox	2
Childbed	625	Kings Evill	86	Sores, Ulcers, broken and bruised Limbs	82
Chrisomes and Infants	1258	Leprosie	2	Spleen	14
Cold and Cough	68	Lethargy	14	Spotted Fever and Purples	1929
Collick and Winde	134	Livergrown	20	Stopping of the Stomack	332
Consumption and Tissick	4808	Meagrom and Headach	12	Stone and Strangury	98
Convulsion and Mother	2036	Meazles	7	Surfet	1251
Distracted	5	Murthered and Shot	9	Teeth and Worms	2614
Dropsie and Timpany	1478			Vomiting	51
Drowned	50			VVenn	1
Executed	21				

Christned { Males 5114 }
 { Females 4853 }
 { In all 9967 }

Buried { Males 48569 }
 { Females 48737 }
 { In all 97306 } Of the Plague 68596

Increased in the Burials in the 130 Parishes and at the Pest-house this year 79009
Increased of the Plague in the 130 Parishes and at the Pest-house this year 68590

The devastating effect of the plague is shown. Since London at that time contained something less than half a million people, 68,000 deaths represent a mortality of nearly 15%. It was undoubtedly much higher than that among the lower strata because many of the well to do sought safety in flight. It was called "The Poor Man's Plague." There are several other items of incidental interest in this document. But we are particularly interested in the incidence of tuberculosis. The items here that may be reasonably ascribed to that disease are:

Consumption	4,808
Kings Evil	86
Rising of the Lights	397
Part of Teething and Worms	1,300
	—
	6,591

If we include 50% of "Teething and Worms" as tuberculosis we shall not be so far wrong. Certainly in a community riddled with tuberculosis, a very large number of young children must have died of disseminated disease. This gives a total of over 6,000 people having died of tuberculosis. In a population of 500,000 this is a mortality of 1,200 per 100,000 which is appalling. It means that 12% of the people must have been going about with active tuberculosis. It means that the chivalry, romance and glamour in the days of Shakespeare, Elizabeth and Bacon were associated with a tuberculous infestation about three times as bad as we find now among our untreated Indians. It is hard to understand why everyone did not succumb; but perhaps in that blazing furnace of infection our race was forging the relative immunity which gives us partial protection today.

In further confirmation of the enormous ravages of tuberculosis in the 17th century we read in Sydenham (who was at his prime during the plague), "Indeed, deadly as phthisis is, *killing two-thirds of those who die of chronic diseases*, it has a specific in riding, as truly as ague has in bark, or the venereal disease in mercury."

In Graves Clinical Medicine there is an attempt to estimate the incidence of tuberculosis from the vital statistics for 1841. He states that among 2,000,000 people then in London 7,000 died annually of tuberculosis. This is a death rate of 350 per 100,000 or about one-third of what it had been 200 years before, and six times as great as our Canadian Mortality today.

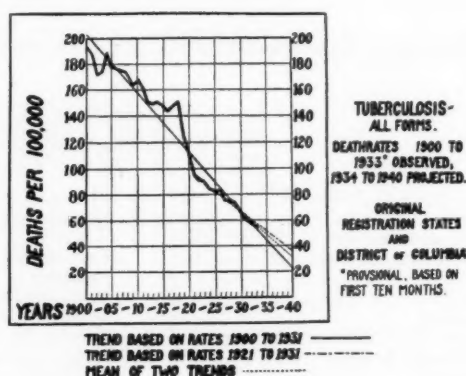
These figures for London of 100 years ago cannot be very accurate. There must have been many errors of omission and of commission in their compilation. But even allowed for much inaccuracy we are forced to the conclusion that Europe has been riddled with tuberculosis as far back as

authentic history can be traced. Even though we have no dependable figures we can make this inference from reading the medical and non-medical literature. The frequency with which people are said to have suffered from, or died with phthisis, consumption, Rising of the Lights, a "bloody flux" from the lungs, dry rot of the lungs, and chronic cough is very striking. In reading the lives of John and William Hunter one feels convinced that this family was heavily infected. There were ten in the family; three died in infancy and four in early adult life. One of these, James, definitely had phthisis and died of haemorrhage. What one can find of the death of the others suggests tuberculosis. This is a typical history of a family with a tuberculous focus in the father or mothers. A certain proportion die of disseminated tuberculosis in babyhood, some die of adult tuberculosis in early maturity, and some survive. The biographical and historical literature contains many similar examples of tuberculous families—something that is almost unknown in well-to-do families of today.

Modern Statistics

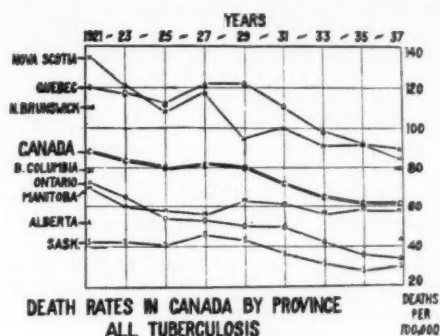
Accurate tuberculosis mortality statistics are not found until the latter part of the 19th century.

GRAPH NO. I.



Graph No. I. shows the death rate from tuberculosis of all forms in the United States from 1900 to 1933. From this you will see a gradual and steady fall of mortality. It starts at 200 in 1900 and drops to nearly 50 in 1934. By projecting this curve by various methods one would predict a death rate from 20 to 30 in 1940. Unfortunately the experience of recent years suggests that a flattening of the curve is taking place and that the ultimate strongholds of tuberculosis will yield only with difficulty. It is interesting to see the sudden fall in death rate in the post war years (1918 to 1922). In Germany a rise in death rate of similar proportion took place at the same time. We shall not speculate upon the causes behind these phenomena.

GRAPH NO. II.



Graph No. II. shows what has taken place in Canada during the past 20 years. The death rate has consistently fallen in each Province. The Provincial death rates tend to decrease as one proceeds West. The only exceptions to this general rule are that Quebec and British Columbia are higher than they should be. In Quebec this may be accounted for by relative crowding and poverty. In British Columbia it may be partly due to the high proportion of Indians in the population and partly to contact with the Orient where tuberculosis is rampant; also, invalids are likely to establish residence on the West coast and finally die there. It will be seen that the death rate in all the Provinces except Manitoba rose definitely in 1926. This was due to the inclusion of Indians in general mortality statistics. In Manitoba, Indians were not included till 1928 and here we see the expected rise. Up to that time Manitoba was running a close race with Ontario but apparently has never recovered. The Indian death rate accounts very largely for our relatively high death rate. Dr. E. L. Ross has recently pointed out that in 1929, 361 white people died of tuberculosis in Manitoba and in 1937 only 257 died—a 28% reduction. In spite of this our gross death rate remains stationary; it is being kept up by the more adequate reporting of Indian deaths; only 63 Indian deaths were reported in 1929 while 176 cases were reported in 1937. This is not due to increasing death rates among Indians. The Indian population is gradually increasing. It is due to increasing interest in tuberculosis among Indians. At present the Indian population which is only 2.2% of the total accounts for 40% of the deaths.

The gradually increasing death rate as one proceeds from the older to the newer provinces have several possible causes:

1. There is less crowding into cities and towns on the prairies. There are few large cities and no slums.
2. The average economic status has, till recently, usually been higher in the West. Poverty is a new experience for us.
3. The population in the pioneer provinces has been automatically selected from the stronger

individuals of the older provinces. The boy with the "weak chest" on the old farm in Bruce county was not the one selected to homestead on the prairies.

4. One may be tempted to think that climate may have something to do with the lower incidence in the drier parts of the Dominion. It is a popular belief that tuberculous people do better in a dry atmosphere. The evidence for and against this idea is complex and not convincing one way or the other.

The general effect of the West on mortality, whatever its cause, is particularly evident in Saskatchewan where the death rate was only slightly over 40 in 1921 and is now 30.

Decline of Tuberculosis

The figures you have been shown demonstrate the fact that tuberculosis has been on the decline for as long as statistics have been compiled. This applies in all parts of the world. The reason for this decrease is a most interesting epidemiological problem. Of course we have frequently been told that it is due to the anti-tuberculosis effects of doctors, governments and lay bodies, and the advent of Sanatoria with consequent isolation and adequate treatment. The figures that are usually presented to prove this by tuberculosis workers are often not convincing. A graph of the death rate, year by year, over a long period could in most communities be used by the sceptical to prove that our efforts have been futile.

It is obvious that our specific anti-tuberculosis activities have not been the only or perhaps the chief cause for the following reasons:

1. The decline and fall of tuberculosis started years — perhaps hundreds of years — before any concerted campaign was begun.
2. The reduction in death rate over long periods can be shown to have proceeded almost as rapidly in communities with no campaign as it has where the work has been intensive.

If the decrease in tuberculosis is not entirely due to our efforts what are the causes of a phenomenon so spectacular? Well, of course, we can give no specific answer. We may ask: Why have other infectious diseases also decreased in civilized countries: What accounts for the almost complete disappearance of plague, leprosy, small pox, typhoid fever, and many other killing diseases of 100 years ago? We can only say that for various reasons, which could be elaborated for hours, that the civilized world is becoming less and less congenial for pathogenic organisms and that civilized man is becoming more and more inhospitable as a host.

There is still something inscrutable about the way of all epidemics. It is not difficult to understand the waxing of a measles epidemic; but why does it wane? Why does it not go on till every

susceptible person in the community is infected? The same mystery surrounds the waning of tuberculosis. We can regard it as an epidemic disease, and since it is a disease that lasts a life time and not a few days as in acute fevers, its epidemics have a periodicity of hundreds of years and not of months. We can then regard our own day as being at the end of a great epidemic, the peak of which occurred perhaps two or three hundred years ago.

Future Policy

Though candor forces us to admit that our efforts have not accounted for the steady reduction in death rate in the past few hundred years, common sense tells us we must go on with our campaign and even redouble our efforts, and for very good reasons. A hundred years ago tuberculosis was pandemic; everyone became infected by the time they reached maturity; resistance was built up by the selection of an enormous mortality; death rates gradually came down as in other epidemics. Now tuberculosis is endemic or sporadic. Eighty per cent. of our school children on the prairies escape contamination. Each succeeding generation is growing up less infected, less selected, and less resistant—all of which will set the stage for an epidemic outbreak. We are on an immunological hot spot from which we dare not retreat for fear of disaster. It is generally agreed that it is safer to have a positive tuberculin reaction if one is to live in an infected atmosphere; since we are bringing up the younger generation with negative tuberculin reactions we must provide a non-infected environment. The only way in which we can protect future generations is to eliminate or isolate the infection completely. The complete elimination of tuberculosis is the aim of present day anti-tuberculosis work. It is hoped that all people will be protected against contamination and go through life with negative skin reactions.

How can this be done? It cannot be done by waiting for infected people to develop symptoms that drive them to a doctor or signs that can be found with a stethoscope. Almost all the patients who have cough and expectoration have at least moderately advanced disease; almost all cases that have stethoscopic signs have already gone on to excavation. Waiting to discover tuberculosis by manifest signs and symptoms accounts for the fact that about 80% of all those admitted to Sanatoria are far advanced. This means that most are incurable and that they have already contaminated those with whom they have been living.

Further progress demands discovery of cases before they are ill and isolation of all open cases. Three things are necessary to accomplish this, namely:

1. Easily available diagnostic facilities.

2. Adequate bed space for treatment and segregation.

3. Full co-operation of the medical profession.

These necessities are gradually being acquired in Canadian Provinces and their effect is being felt. As evidence of results I submit an extract from a brief presented before the Royal Commission by Dr. G. J. Wherrett, Executive Secretary of the Canadian Tuberculosis Association.

"Alberta is the only province that is an exception to the general observation that deaths decline according to the extent to which treatment facilities are provided. Alberta is low in treatment beds and annual per capita expenditure and yet it has had a fair reduction in death rate. It must be borne in mind, however, that half-breeds who are a provincial responsibility are not included in this table and as Alberta has the greatest proportion of Indian deaths, 41.3 per cent. as against 26.5 per cent. in Saskatchewan, it should also have a greater proportion of half-breeds among whom the death rate has not declined to the same extent as in the white race. This table was calculated by the Vital Statistics Branch of the Dominion Bureau of Statistics and computed on the bases of exclusion of Indians and half-breeds because their registration of deaths was incomplete in the four-year period from 1922-1925.

Comparison of Average Tuberculosis Mortality Rates by Provinces, 1922-25 and 1933-36

	Four-year tuberculosis death rate per 100,000 population		
	1922-25	1933-36	Percentage Decrease
Registration Area as of 1921	65.4	40.6	37.9
Prince Edward Island	119.6	78.5	29.0
Nova Scotia	123.9	90.2	27.2
New Brunswick	106.4	76.2	28.4
Ontario	59.9	34.8	41.9
Manitoba	57.5	35.5	38.3
Saskatchewan	41.2	22.2	46.1
Alberta	43.2	25.4	41.2
British Columbia	70.6	52.6	25.5

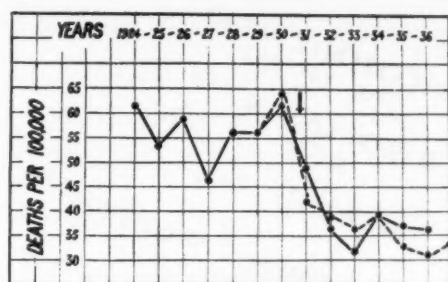
Figures for Quebec are not given because Quebec did not become part of the Registration Area until 1925."

Part of the reduction of death rate indicated above may be due to the unexplained general downward tendency of death rates. But there is very suggestive evidence that the reduction parallels the effort expended.

An even more striking proof of the good effect of applying the three principles set out above is provided by a study of the death rate in the City of Winnipeg in the past 15 years. (Graph No. III.)

A sudden fall in death rate will be seen to have taken place in 1931 and 1932 followed by a more

GRAPH No. III.



CITY OF WINNIPEG CRUDE DEATH RATE

ALL TUBERCULOSIS

CRUDE RATE ———

CORRECTED RATE - - -

gradual downward trend since. This is more marked than indicated on the graph since the 1938 figure, which is not shown, is only 24.7. The average death rate of the seven years, 1924 to 1931 inclusive, is 55; the average of the seven years, 1932-1938, is 34—a reduction of 38%. This dramatic change corresponds to the provision of the first two necessities, i.e., the setting up of available diagnostic facilities in the opening of the Central Tuberculosis Clinic and the supply of adequate bed space in the building of St. Boniface Sanatorium.

With these new organizations the reduction in death rate should continue. With regard to the third necessity it can truly be said that anti-

tuberculosis agencies have always had the finest co-operation from the profession of Winnipeg. Possibly no group of practitioners in Canada appreciate their responsibility so fully and shoulder their obligation so cheerfully in this respect. As a consequence, Winnipeg is now one of the healthiest cities in Canada so far as tuberculosis is concerned.

The family practitioners are now in the position of being able to advance the fight against tuberculosis more than any other agency. They are the only members of the profession who have an opportunity of discovering early tuberculosis. The only adequate instruments in the early discovery of tuberculosis are the tuberculin syringe and x-ray equipment. Only by doing tuberculin tests on all contacts, and x-raying those that are positive, will any large percentage of curable cases be discovered. The only way in which further spread can be stopped is by forcing carriers into isolation just as though they had smallpox.

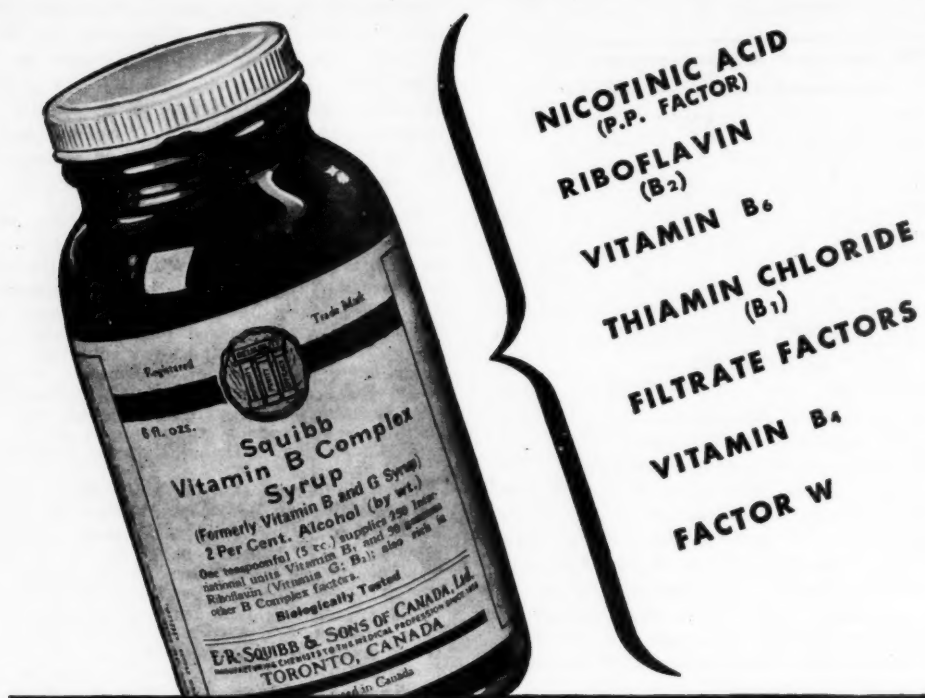
If anyone thinks that the half million dollars spent on tuberculosis in Manitoba is wasted, let him consider what would follow the abandonment of our present scheme. If all tuberculous people now in Sanatoria were discharged today about 500 centres of infection would be set up. The Provincial Schools and other public places would immediately become centres for dissemination. Thousands of our uninfected children would immediately become infected. A centre of infection today would cause ten times the havoc that it did 100 years ago when infection was universal. For these reasons I feel that a vigorous campaign against tuberculosis is more justified today than it ever has been and that any relaxation in vigilance might easily prove disastrous.

SECONDARY ANEMIAS

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